# FIFISH V6 EXPERT

FIFISH

# Quick Start Guide
# V1.1

QYSEA

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**Disclaimer** 36

# Safety and Regulations

**Operating FIFISH products requests training and practice. Please read through this document before operating in water.**

Do NOT touch the running propeller

Avoid overheating of motors, do NOT run the thrusters in air for over 30 seconds

Do NOT throw the ROV when deploying into the water

Do NOT look directly to the LEDs, and do NOT touch the LEDs when they are ON

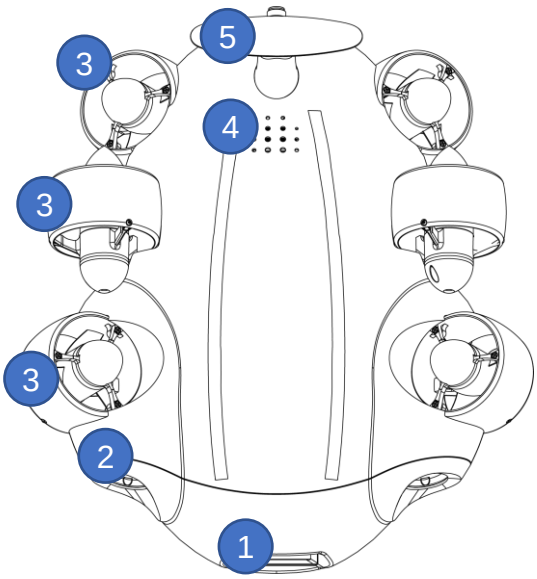
Beware of the environment while operating the ROV (tide, water level, water traffics, etc.)

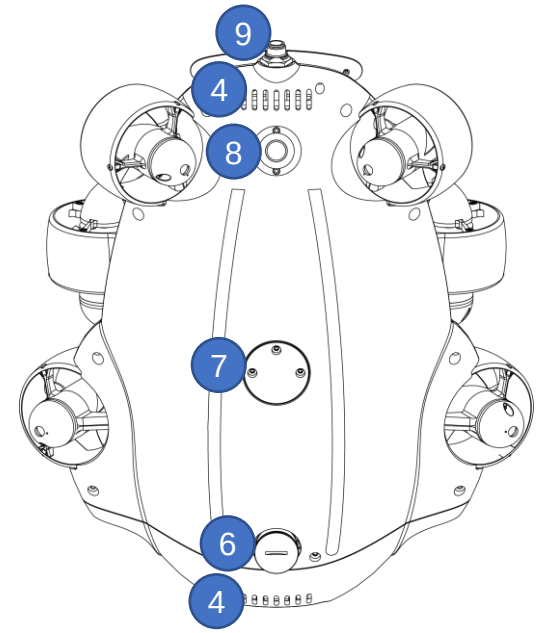
Avoid the reefs, rocks, seaweeds, fishline or other objects that may cause damage to or entanglement of the ROV or tether

Be part of marine protection and conservation for the local coral and marine life

Maintain after dive, check the, Maintenance Guide in page 30-32

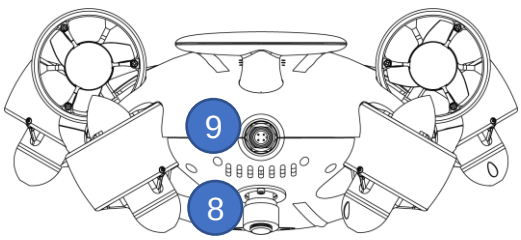
# Definition, ROV




## FIFISH V6 Expert ROV

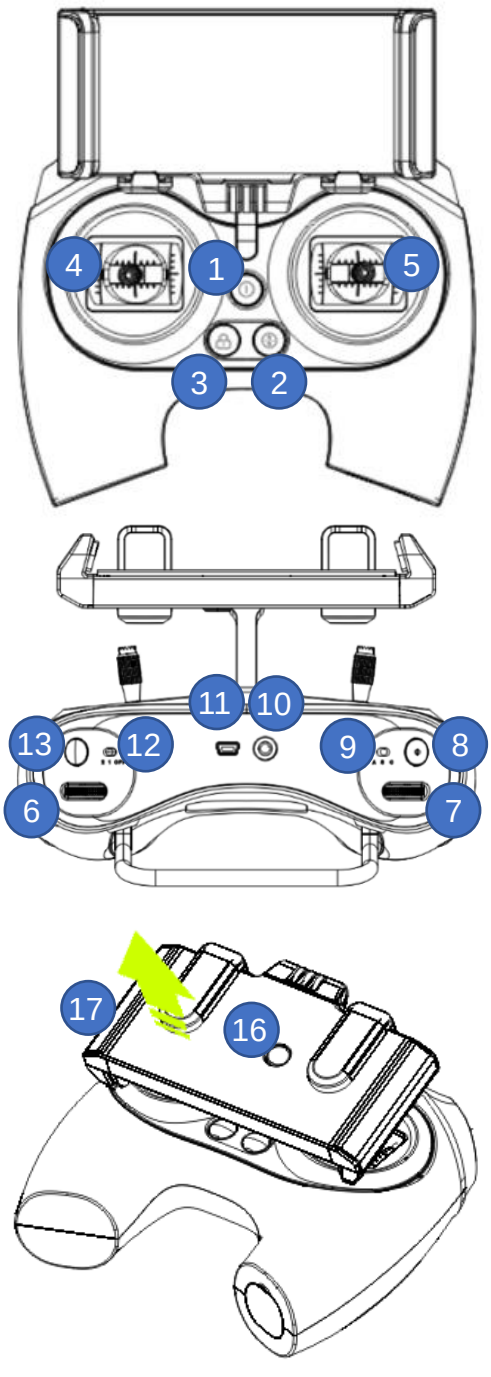
1. 4K UHD Underwater Camera
2. 3,000 lumens LED × 2
3. Vector Thruster × 6
4. Venting Holes
5. Rear Wing [1]
6. microSD Hot Shoes
7. Mounting Port
8. FIFISH Q-Interface [2]
9. ROV Tether Port [3]




## NOTE:

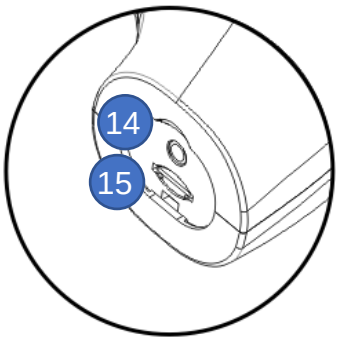
1. Do **NOT** shake or swing while holding the rear wing.
2. Hook tether's securing loop on the stem of rear wing when connect (See **Preparation and Connection** / Hardware Connection in page 9-11)
3. The all ports including **FIFISH Q-Interface™** shall be clean and dry at all time.

# Definition, RC

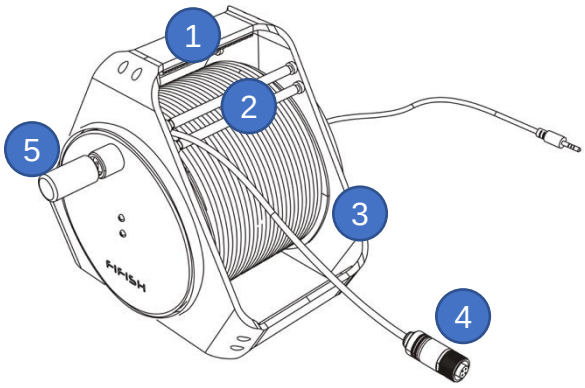


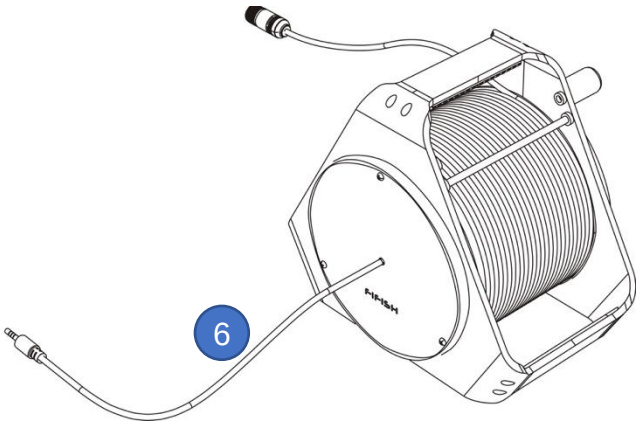

## RC (Remote Controller)

1. ON/OFF
2. Depth Holding
3. Lock/Unlock
4. Left Control Stick
5. Right Control Stick
6. Right Wheel
7. Left Wheel
8. Video (Record/Stop)
9. Control Mode (Attitude / Sport / Combination)
10. Tether Port
11. Ethernet Port (mini USB)
12. LED Brightness (OFF / 1 / 2）
13. Photo (Snap) 2
14. Charging Port
15. microSD Card Port
16. Clamp Release Button
17. Clamp for Smart Device



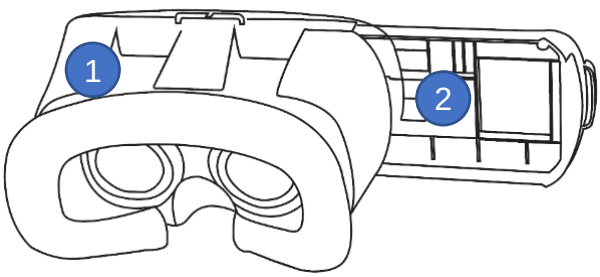
# Definition, Spool and VR Goggle

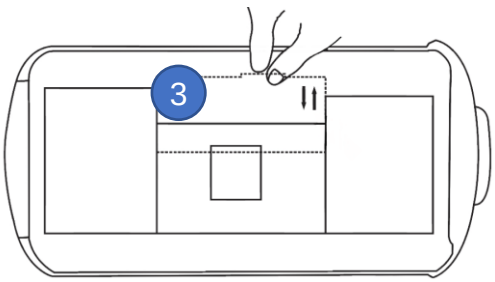



## Spool and Tether

1. Spool Handle
2. Tether Regulator
3. Spool Frame
4. Tether ROV Plug
5. Foldable Handle
6. Tether RC Plug (3.5mm AUX plug)




## VR Goggle

1. Housing
2. Smart Phone Bracket
3. Adjustable Clamp (suit from 3.5” to 6.0” smart phone)[1]

**NOTE:**

Hold your cell phone when you lock and unlock the clamp.

# Definition, Accessories

**2D Image Sonar**
Scan beyond visual distance or visibility

**U-QPS**
Underwater position in real time, and route plan search

**Robotic Arm**
Grab & retrieve subjects below the surface

**Water Sampler (500 mL)**
Collect water sample from certain depth and position

# Definition, Accessories

**UT Thickness Gauge**
Detect coating or metal thickness in ship, offshore infrastructures

**Q-Camera with LEDs**
Provide secondary view for underwater survey

**DVL**
Auto holding position, seabed speed

**pH Sensor**
Monitor pH in real-time

# Definition, Accessories

**HDMI Box 2.0**
Download original resolution videos when recording,
LIVE output HDMI signal

**RC Sun Hood**
Provide shade for tablets

**Edge Box**
Enable to remote control globally

***There are more accessories on the way.***

***For more information about add-ons or accessories, contact our local authorized dealers for an on-site demonstrations.***

# Preparation, Check and App Install

**Checking List**

1. Gears checking
2. Battery is full (ROV, RC, cell/tablet)
3. ROV sensor calibration [1]
4. Smart device compatibility [2]
5. Enough memory for recording/picture
6. Team role setting (pilot, tether man, guide)
7. Entanglement threats, such as, the boat engine, underwater structures, and corals etc.

**NOTE:**

1. If you travel to elevated lakes, low land lakes, or air pressure has changed. Do a ROV sensor calibration is highly recommended (Check ROV Sensor Calibration in page 22)
2. The best compatible smart devices list in, in FIFISH App, help/FAQ/Before Dive, #6

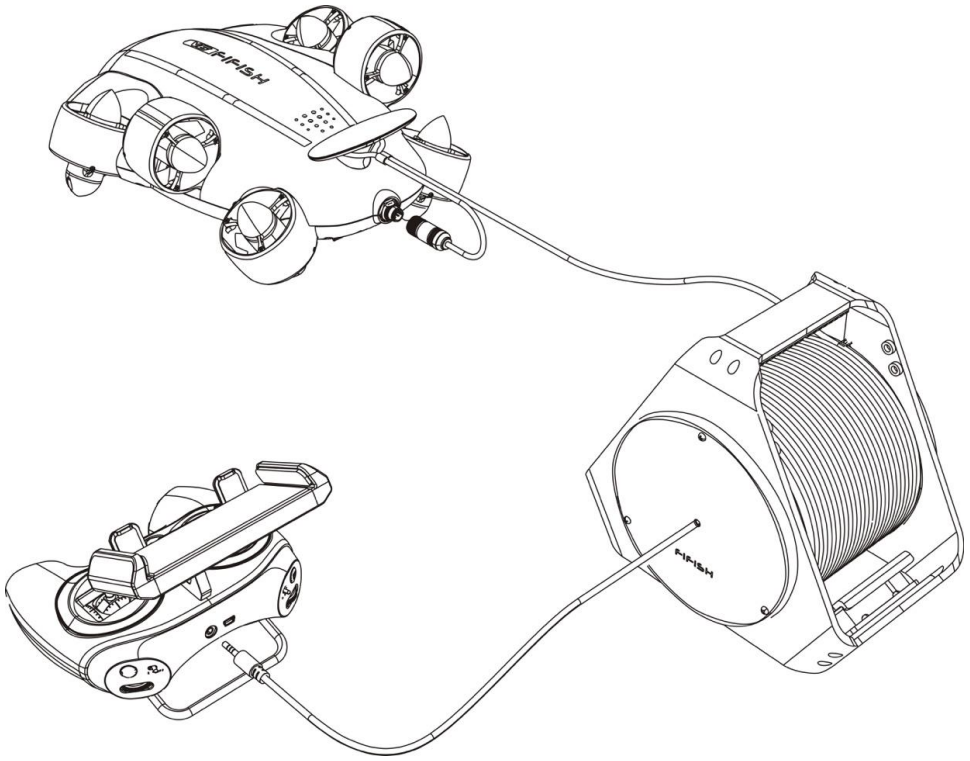
**FIFISH App download and Installations**

Option 1. Scan the QR code below to download FIFISH App.
Option 2. Search the FIFISH on App Store (iOS) or Google Play (Android).
Option 3. Go to QYSEA's website at https://www.qysea.com/support/app-download/

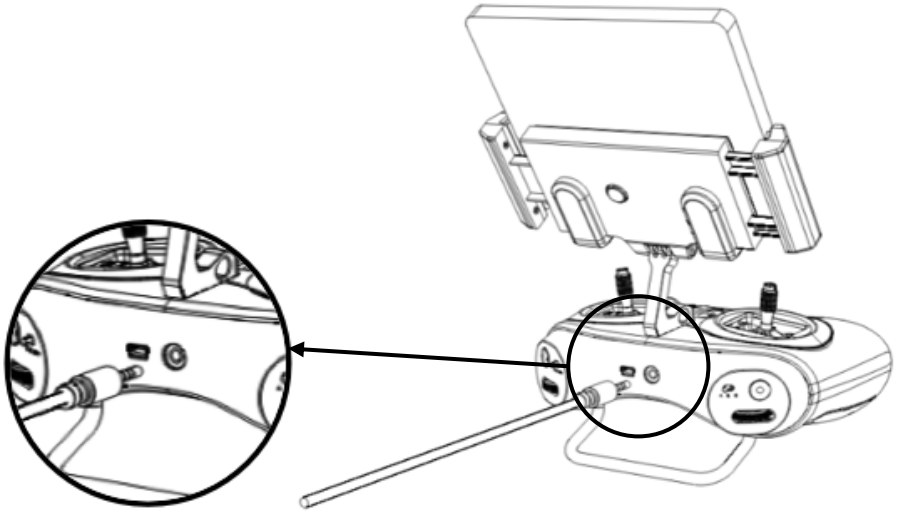
# Preparation, Set-up, Hardware

## 2. Hardware Connection

Overview of hardware connection

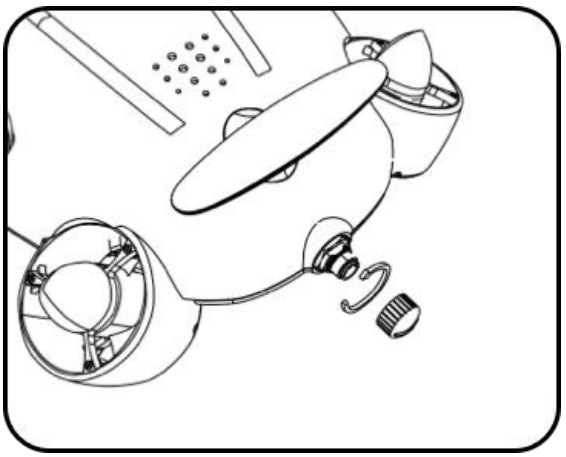


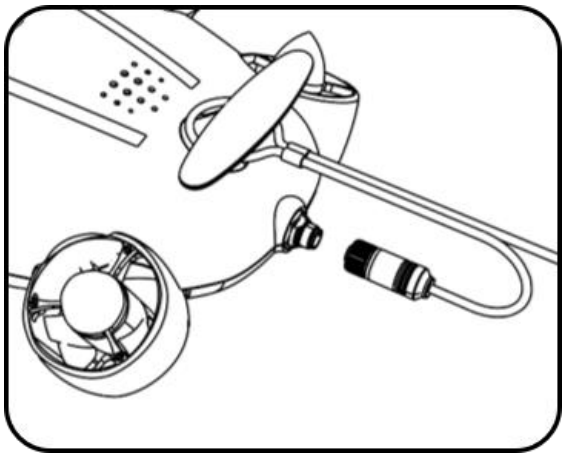
2.1. Plug the tether (3.5 mm head) into remote controller



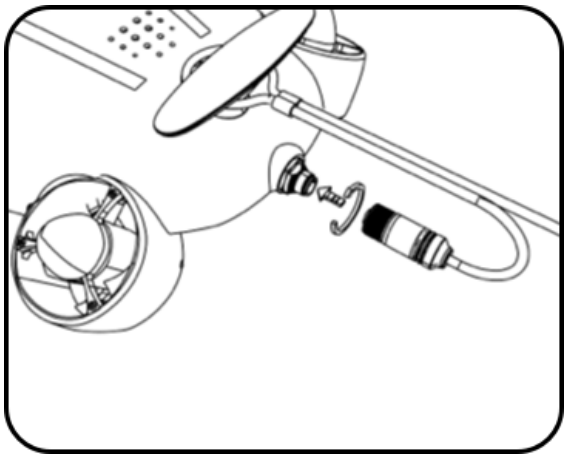
# Preparation, Set-up, Hardware

2.2. Take off the protect cap, tie the knot around the rear wing



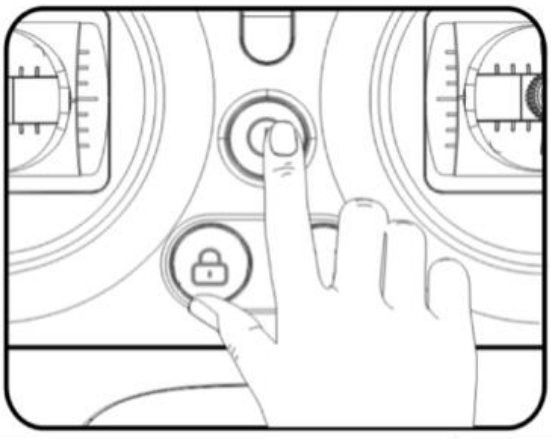


2.3. Plug the ROV Plug into the ROV Tether Port (**finger tight**)



2.4. Turn ON the RC. Press and hold the ON/OFF button (3 seconds)

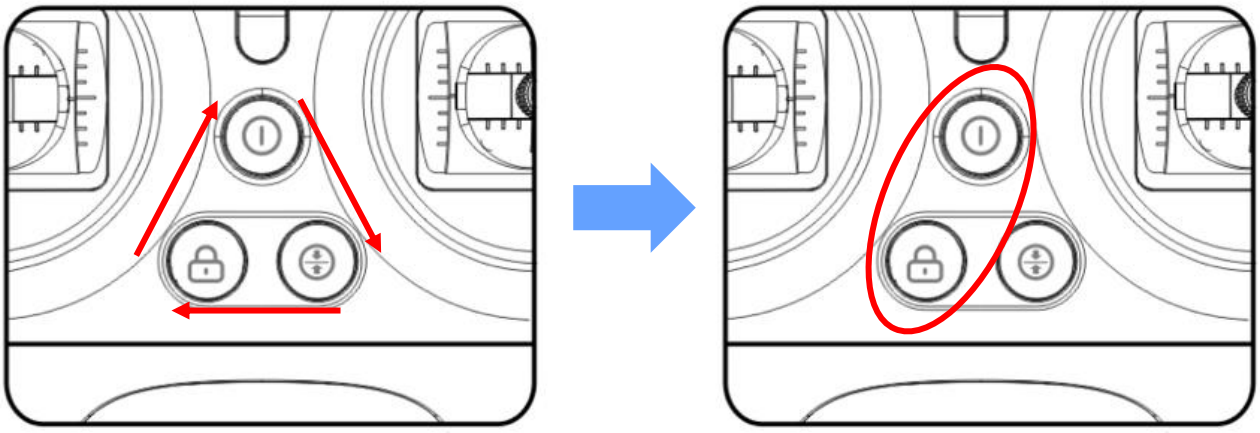
- RC will play 7 chimes from low to high (Do, Re, Mi, Fa, Sol, La, Ti)
- ROV will turn on automatically, and play 5 chimes (Do, Re, Mi, Do, Mi)



# Preparation, Set-up, Hardware

2.5. Take off the protect cap, tie the knot around the rear wing

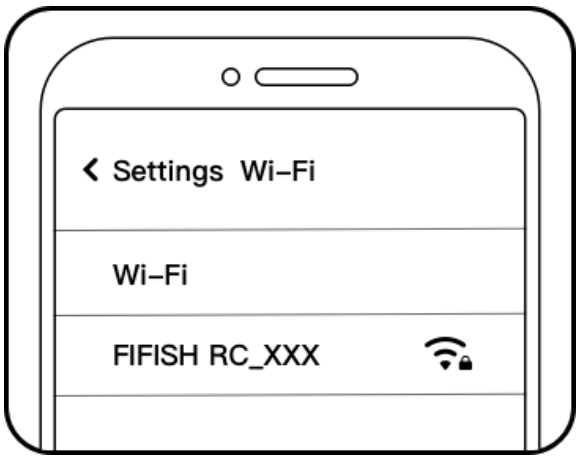
- The “ON/OFF”, “Depth Holding" and "LOCK/UNLOCK” will flash and rotate clockwise, which indicates "Ready to be connected“
- In about 30 seconds, the "ON/OFF” and "LOCK/UNLOCK” buttons will stay solid that indicates the hardware connection successfully



### 3. Software Connection

3.1. Smart device connect with the RC's Wi-Fi (5 GHz)

- Find the Wi-Fi network name “FIFISHRC_xxxx”
- The password is "1234567890”




3.2. Open FIFISH App, then press “**Go Dive**”

- Allow access to photo albums, location, and notifications
- Even the network did not connect to internet, select the “**Keep Trying WLAN**” for iOS user, “**Stay Connected**” for Android user.

**NOTE**

The operate interface will be introduced in chapter **FIFISH App**, page 16-17

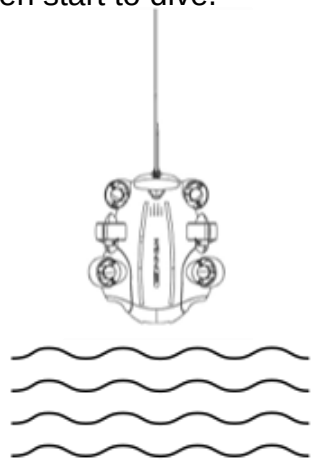
# Preparation, ROV Sensor Cal, Deploy and Retrieve

**4. ROV Sensor Calibration** *(Check the FIFISH App Charter, ROV Sensor Calibration Page 22)*

4.1. Go to **General Setting**
4.2. Select the **ROV Sensor Icon**
4.3. Follow the hit on FIFISH App step by step, first ***Gyro-Acce*** then ***Mag***
4.4. **Reboot ROV** in FIFISH App, and Power ON/OFF RC if necessary

**5. Deploy the ROV**

- ONLY pulling on the tether to deploy the ROV into the water.
- Unlock the thrusters then start to dive.



**NOTE**

*The depth shall greater than 1 meter (about 3 feet) for better operate experiences.*

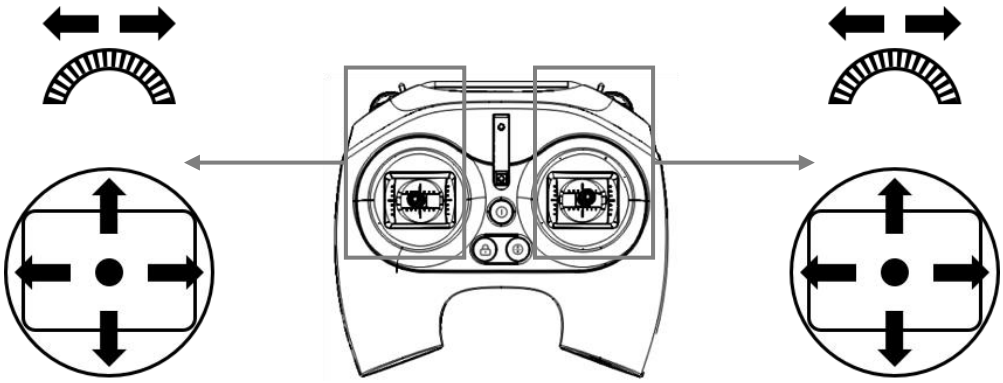
**6. Retrieve**

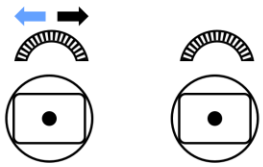
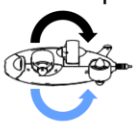
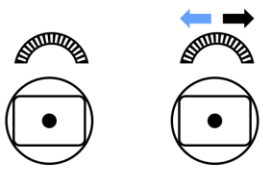
6.1. **LOCK** the thrusters
6.2. **STOP RECORDING** the video before closing the FIFISH App
6.3. **ONLY PULLING** on the tether to retrieve the ROV

# Controlling, Definition

**Definition of Controlling**
The FIFISH PRO V6 Expert uses the patented ***Smart Thruster Array***™ to ensure the ultimate maneuverability and delivers the 6 DOF (degree of freedom).
- V6 Expert can move in descend & ascend, left and right, forward and backward.
- V6 Expert can rotate in 360 yaw (z-axis), 360 pitch (y-axis), 360 roll (x-axis).

We have simplified the Left Joystick, Right Joystick, Left Wheel and Right Wheel into the following symbol. The arrows on RC indicate the command and the arrows on ROV indicate the actual movements.



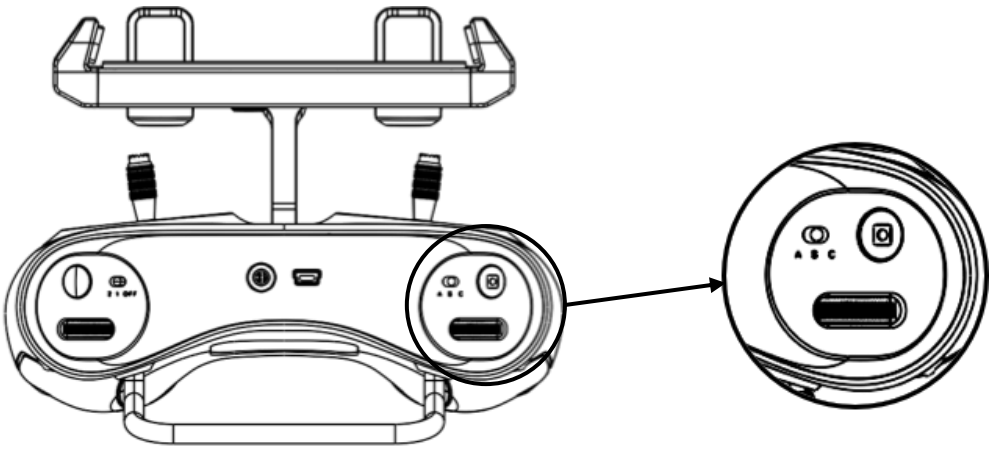
| Remote Controller | V6 Operation Preference Setting | |
|---|---|---|
| | ROV Modes (USA/JPN/CHN) | UAV Modes (USA/JPN/CHN) |
|  | Ascend / Descend |  Pitch Up / Pitch Down |
|  | Left / Right | Roll Counter Clockwise[1] / Roll Clockwise[1] |

**NOTE:**
From the FPV (first person view) the **blue** is rolling counterclockwise and **black** is rolling clockwise, and the rolling can activate in Sport or Combination Mode.

# Controlling, Controlling Modes

## Controlling Modes

FIFISH PRO V6 Expert supports 3 modes for control: A, S, and C.
A is Attitude mode, S is Sport mode, C is the Combination mode.



## Attitude Mode

Attitude mode is designed for beginners. The ROV will not roll in Attitude mode. The ROV will stay in same depth moving when depth holding is ON. Even with pitch angle, the depth will be the same.

## Sport Mode

Sport mode is designed for skillful pilots. Sport mode will enable the rolling freedom, so, you will access all 6 degree of freedom of V6 Expert. Controlling and moving based on the FPV (Frist Person View), do not operate in third person view. The ROV will only stay in the same depth with no command input, when depth holding ON.

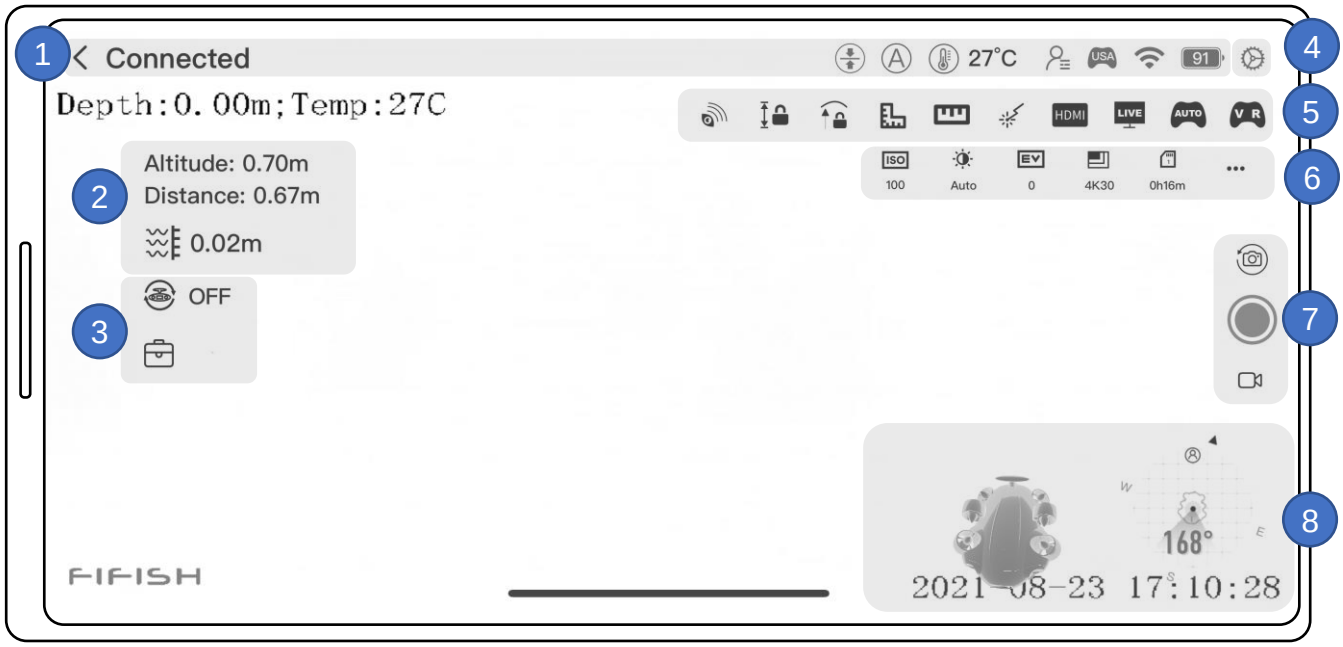
## Combination Mode

Combination mode activate the head tracking controlling via FIFISH VR Goggle, which allow pilot to use the FIFISH VR Goggle to pitch, roll and yaw. Combination mode delivers the intuitive control and immersive experiences. Combination mode supports head tracking and remote controller working together.

## Accessories Attached

The right wheel will ONLY be working in Attitude mode or Combination mode for motor driven accessories. *For example, robotic arm, water sampler, robotic fish clamp, and compass ruler, and sludge sampler etc.*

# FIFISH App, Operate Interface



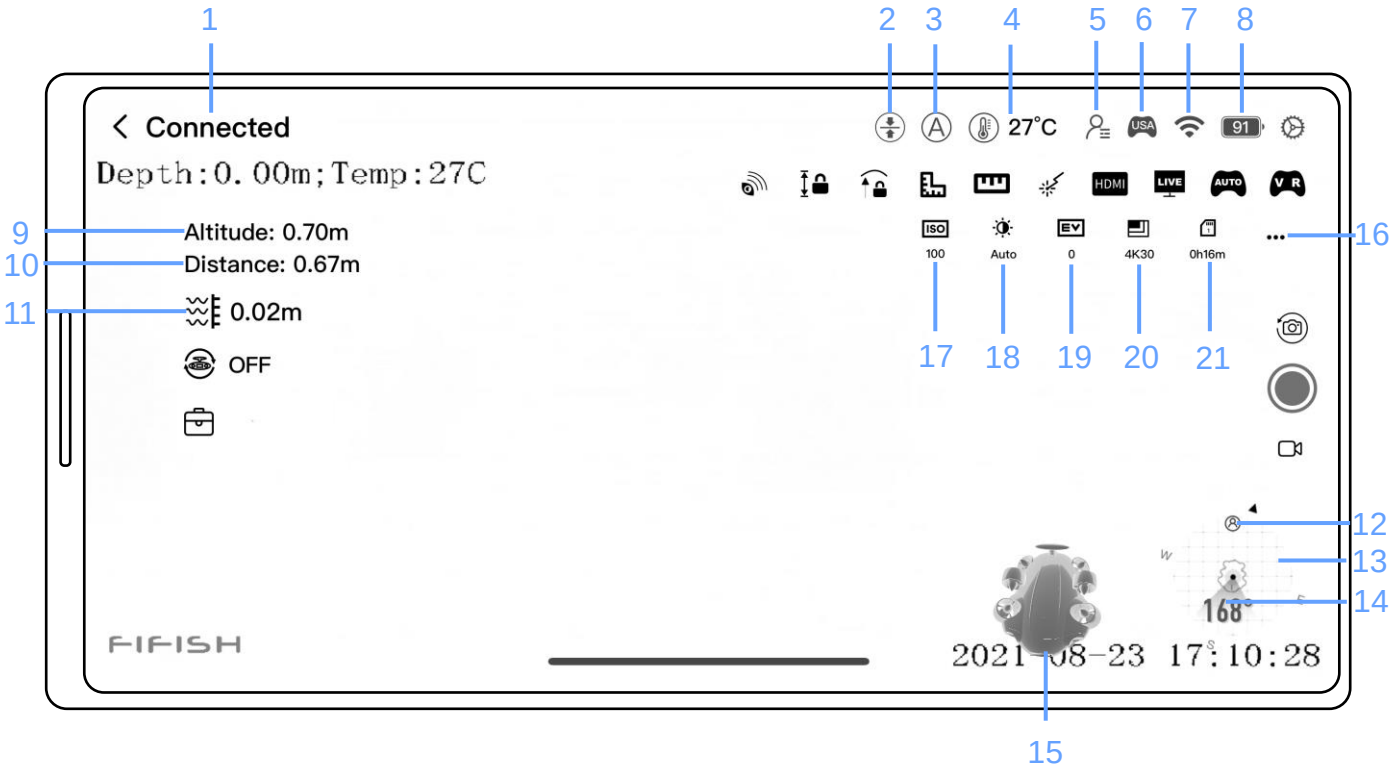

FPV Interface in FIFISH App

1. Status
2. Navigation Information
3. Additional Features
4. General Settings
5. Additional Features*1
6. Image/Video Setting Shortcut
7. Image/Video Button
8. Navigation Chart

**NOTE:**

The additional features will active when attached such accessories.

# FIFISH App, Operate Interface




**Status**

1. Current System Status
2. Depth Holding ON/OFF
3. Control Mode
4. Water Temperature in C/F
5. Pilot or Spector Status
6. Controlling Preference
7. RC's Wi-Fi Signal
8. ROV's Battery in Percentage

**Navigation Information**

9. Altitudinal Distance
10. Frontal Distance
11. ROV Current Depth

**Navigation Chart**

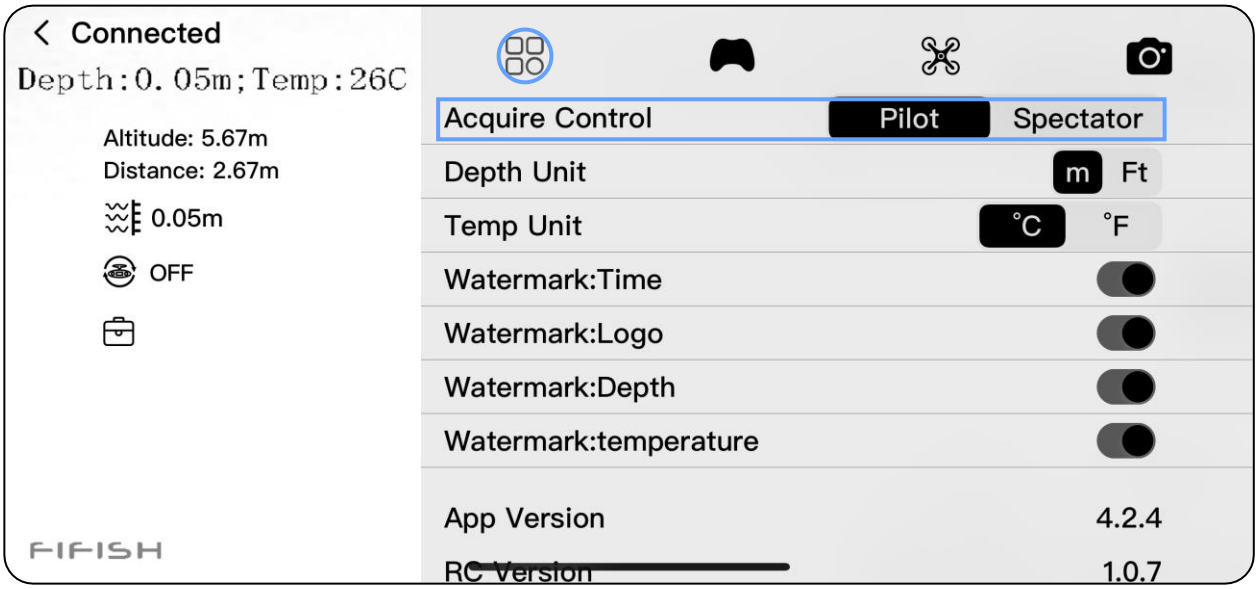
12. Pilot's Heading
13. Compass
14. ROV's Heading in Degrees
15. Posture Indicator

**Camera Setting Shortcut**

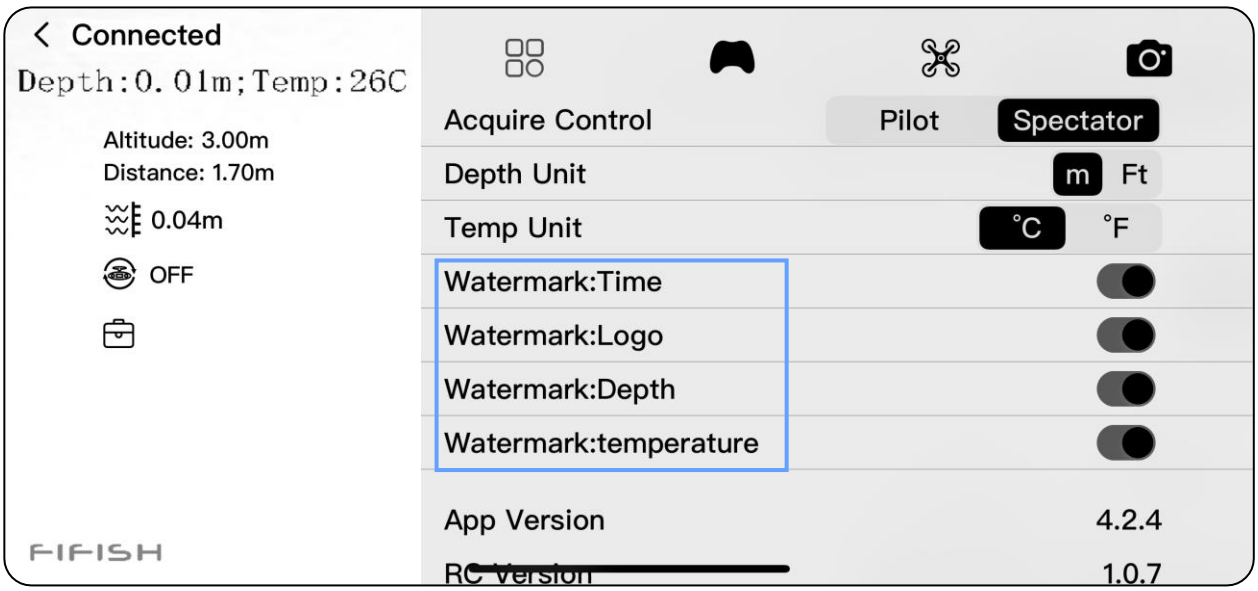
16. Camera Setting
17. ISO
18. White Balance
19. Exposure Value
20. Resolution Frames Rate
21. Remaining Time / Pics

# FIFISH App, System Setting

General Settings, Select **System Setting Icon** in 1st column



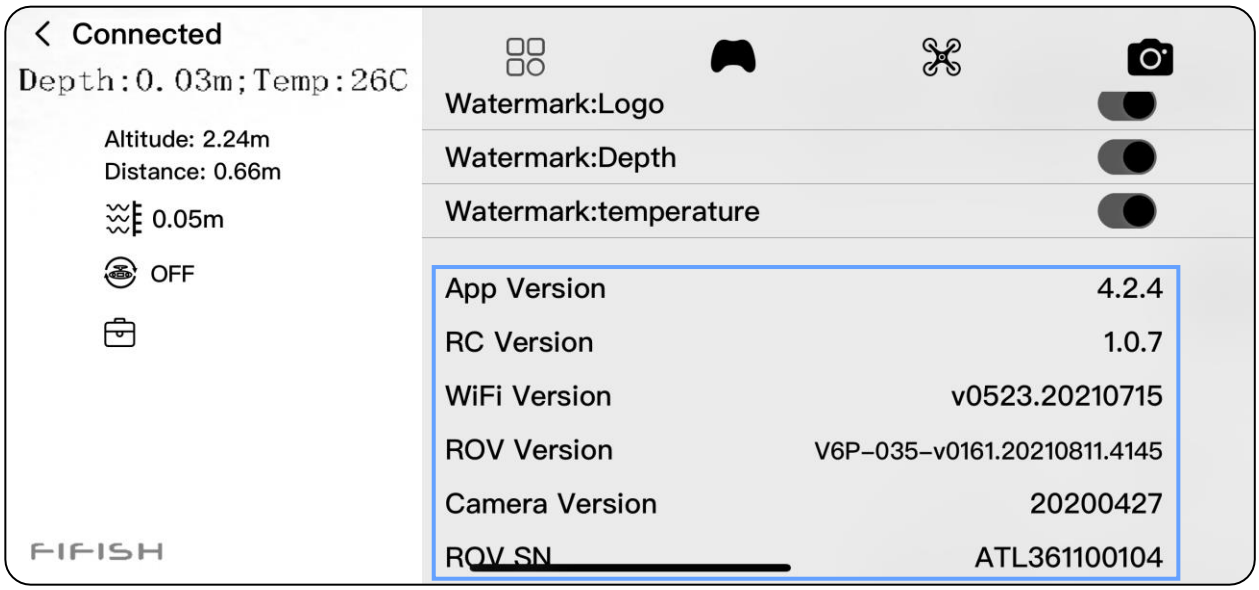

- If you have 2 devices connect to the RC, Click "**Acquire Control**" to get access controlling and adjusting settings
- ONLY the "**Pilot**" can manipulate the settings, such as, watermarks, control preferences, camera settings etc.




- The "**Watermark**" ON will record to video or write on photo, "Watermark" OFF then no trace on video or photo
- Watermark in Time, FIFISH Logo, ROV Depth, Water Temperature

# FIFISH App, System Setting

Scroll down the system setting page, the system version information will show up




- The App Version is the FIFISH App version in your cell or tablet
- The RC Version is the RC's motherboard version
- WiFi Version is the RC's Wi-Fi module version
- ROV Version is the ROV's current software version
- Camera Version is the camera module software version
- ROV SN is the identical SN for this ROV

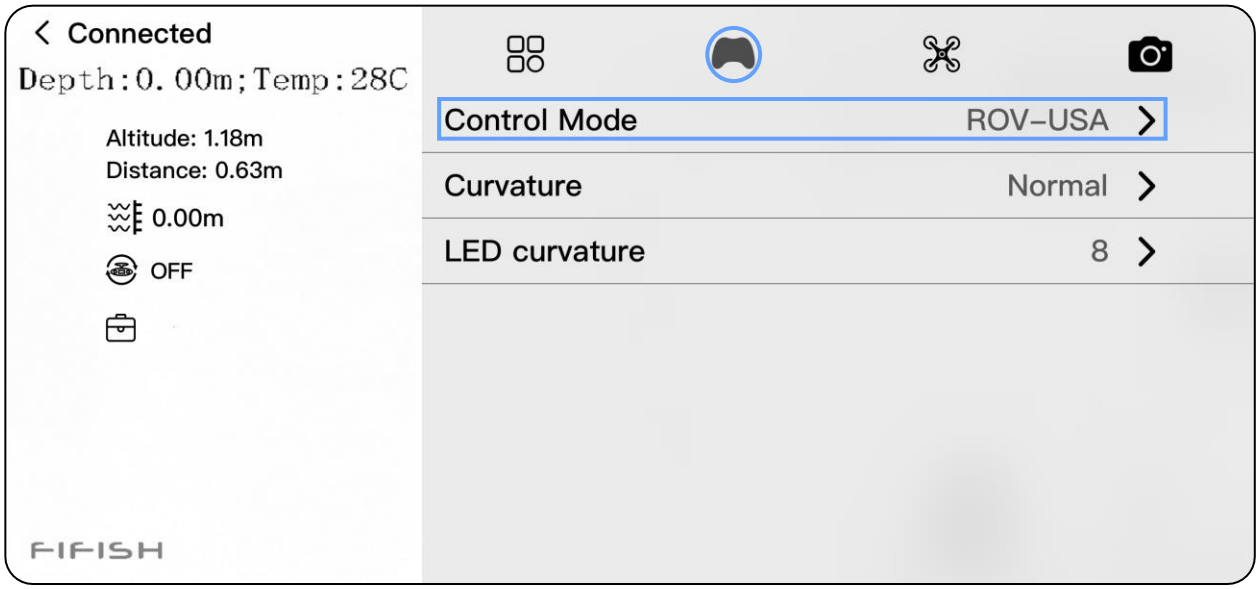
**NOTE:**

*Screen shot of these versions for remote technical support when you are facing any issues.*

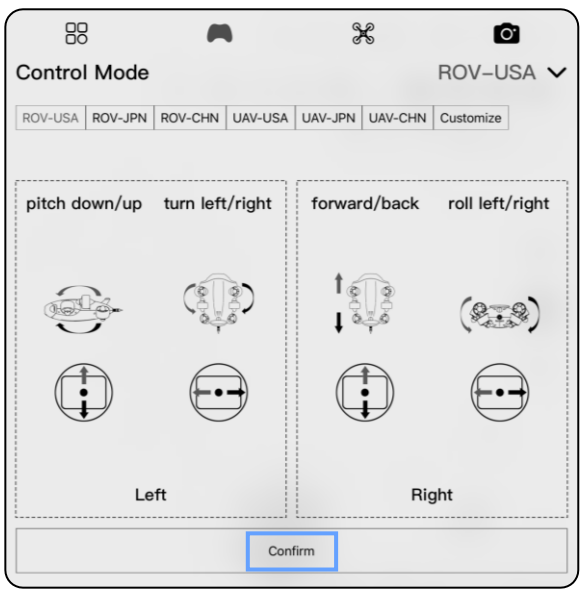
# FIFISH App, Controlling Preferences

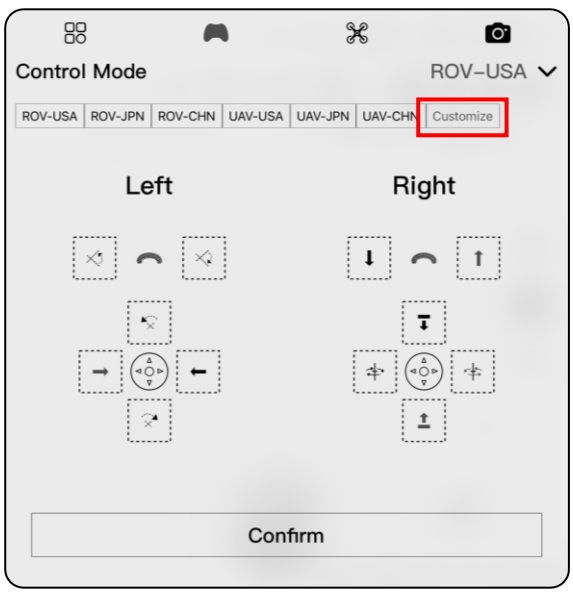
## Controlling Preferences

General Settings, Select **Controlling Preferences Icon** in 2nd column




- Click "**Control Mode**", the default is ROV-USA Control Mode, you can select your preferences if you like
- Click "**Confirm**", after setting



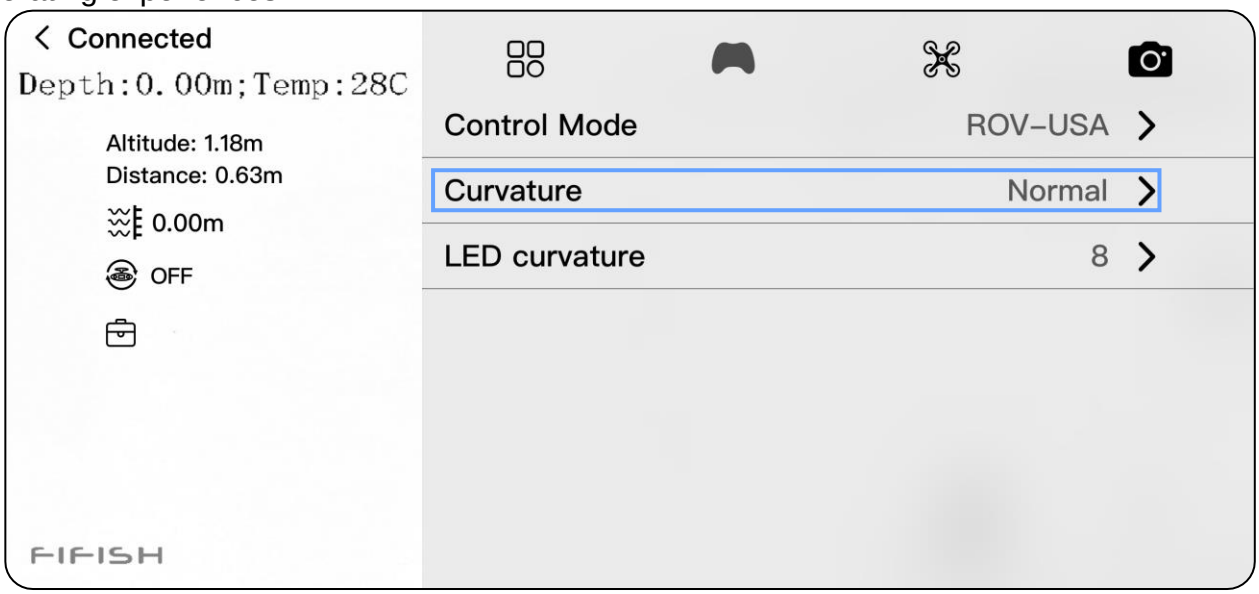




***As for advance level pilot seek for customized setting demo. Please check FIFISH authorized local Dealer or Service Center for more details and training programs.*

# FIFISH App, Controlling Preferences

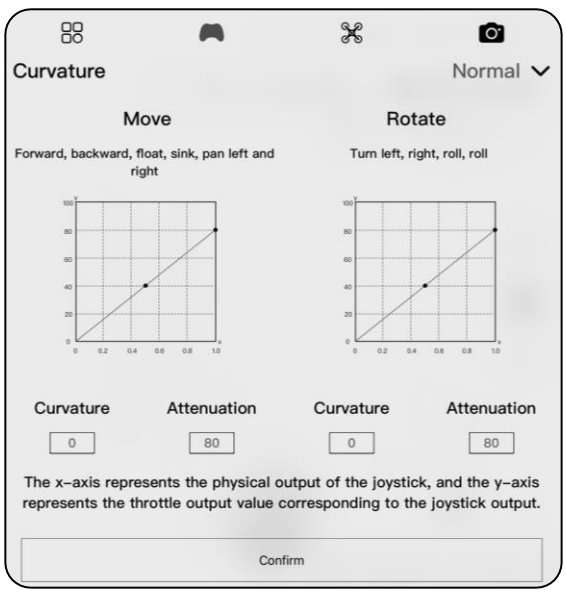
### Control Curvature

For the advance level pilot, the curvature setting can provide more **FUN** and **ACCURATE** operating experiences.




**Set the Move & Rotate**

- Adjusting the curvature (set the center sector output sensitivity)
- Adjusting the attenuation (set the maximum output)

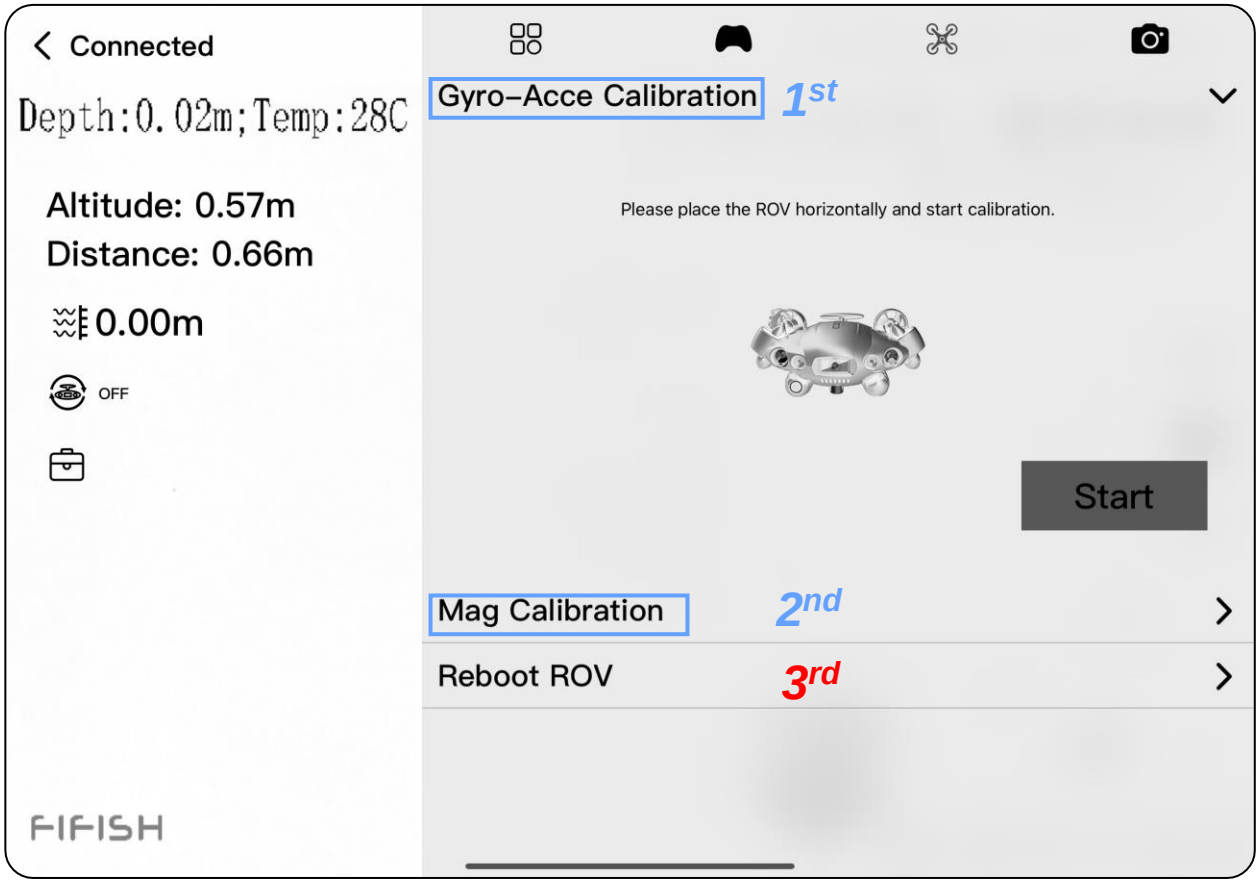



***As for advance level pilot seek for explore curvature setting tips. Please check FIFISH authorized local Dealer or Service Center for more details and training programs.*

# FIFISH App, ROV Sensor Calibration

## ROV Sensor Calibration

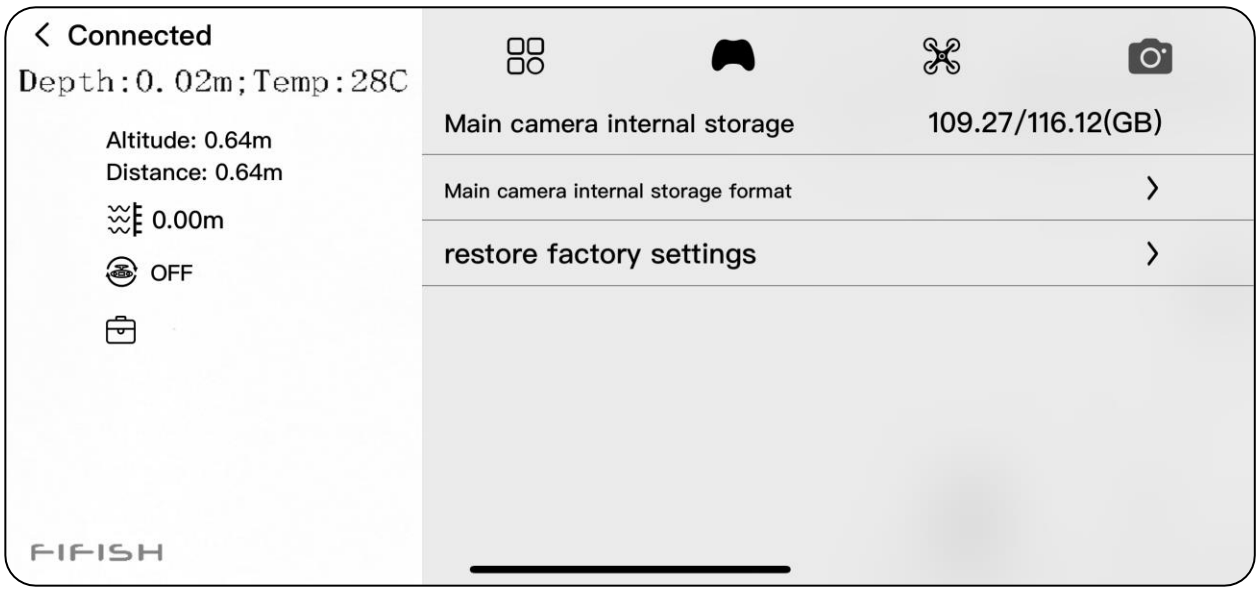
Select the **ROV Sensor Icon** in 3rd column




- Follow the hit on FIFISH App step by step, first **Gyro-Acce** then **Mag**
- **Reboot ROV** in FIFISH App, and Power ON/OFF RC if necessary

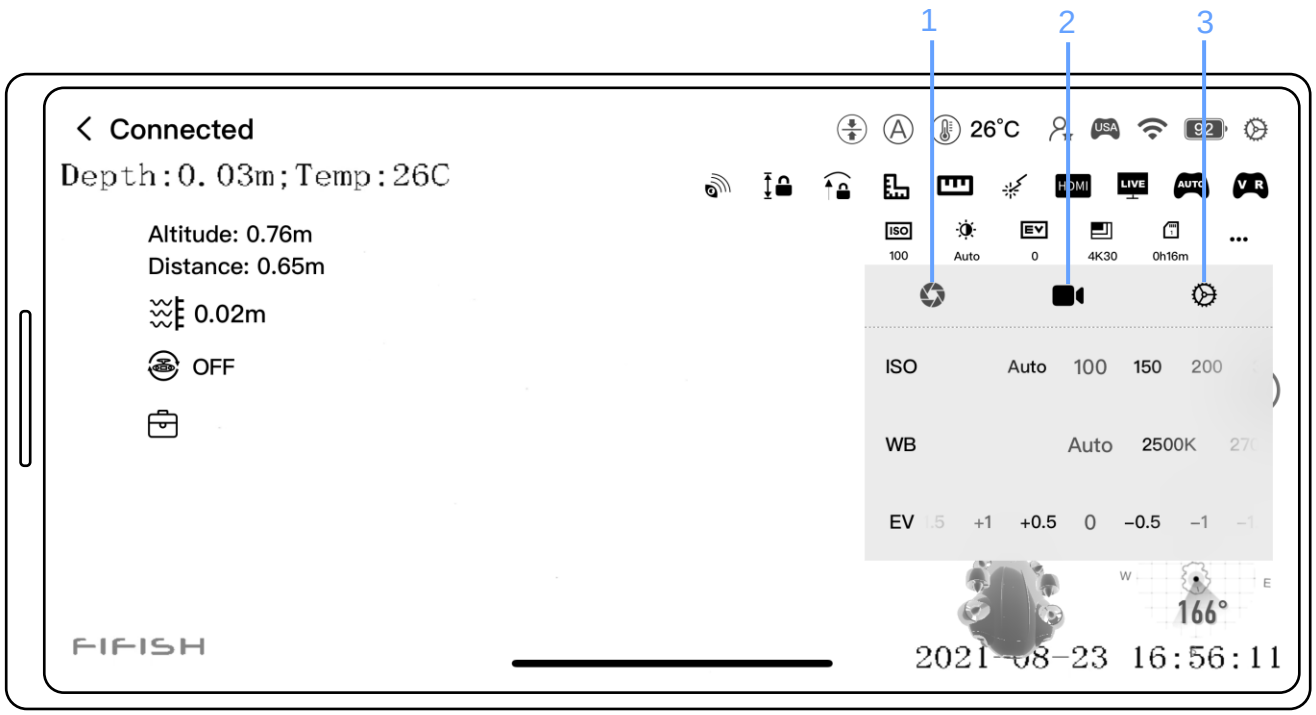
# FIFISH App, Camera

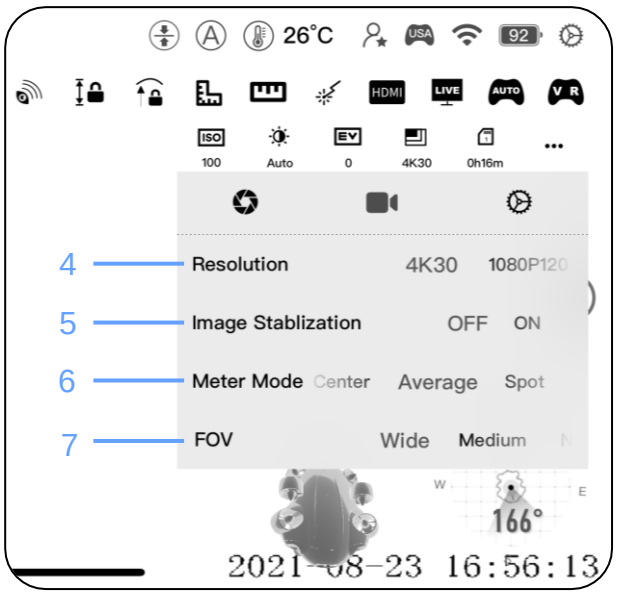
The **Main Camera Internal Storage** is ROV's main camera internal memory status.




- Click "**Main camera internal storage format**" will erase the internal memory of main camera
- Click "**restore factory settings**" will reset to default camera settings

# FIFISH App, Features, Camera



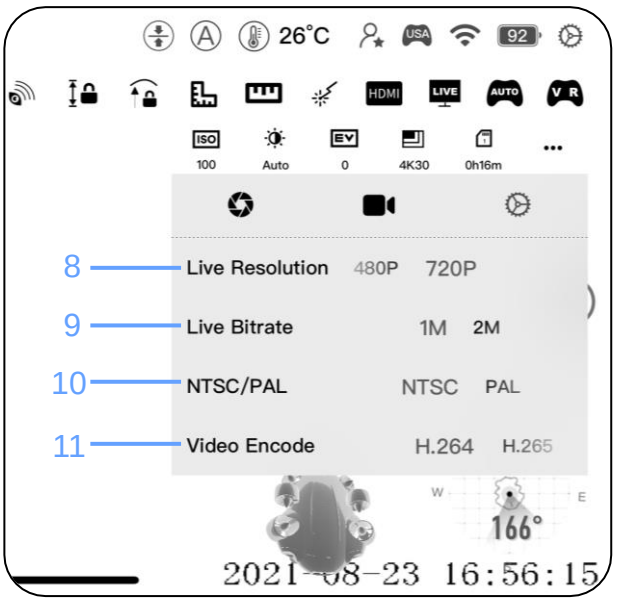




**Image Settings**

1. Exposure and WB
2. Video Setting
3. Camera General Setting
4. Resolution
5. Image Stabilization
6. Light Meter Mode
7. FOV Settings

**Camera General Setting**

7. Live Resolution on FPV
8. Live Bitrate on FPV
9. Color Encoding
10. Video Format

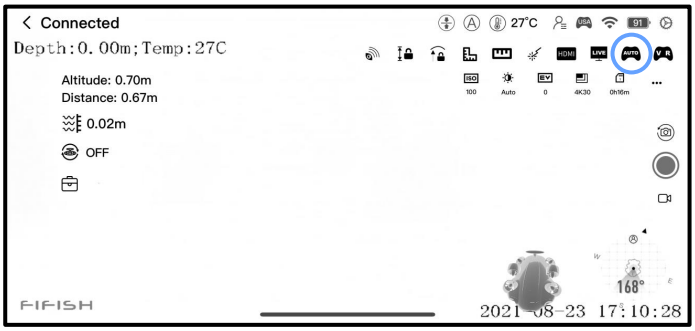
**NOTE:** *Shortcut camera setting will have the same results.*

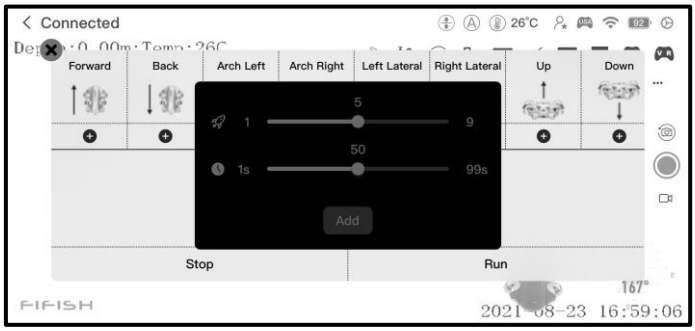
# FIFISH App, Features, Auto Pilot

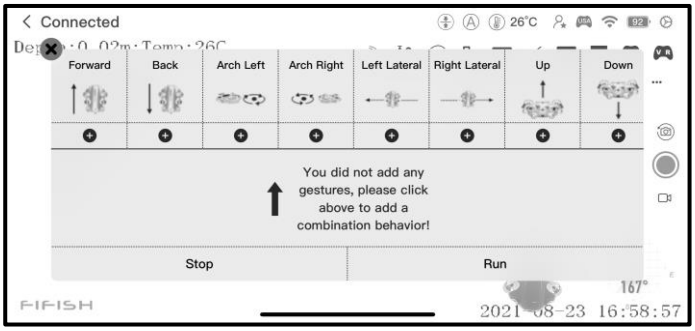
### Auto Pilot 2nd Gen

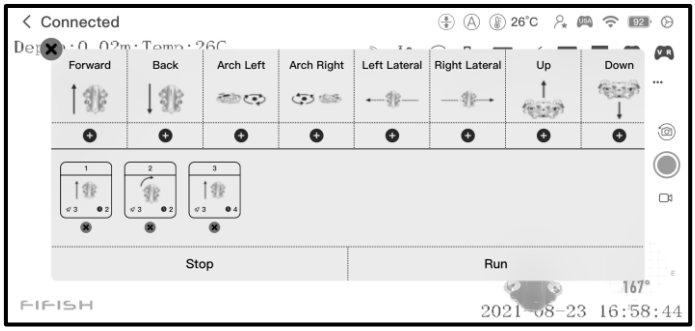
The Auto Pilot 2nd Gen is able programable auto moving commands.

1. Press the "AUTO" to turn ON the Auto Pilot
2. Select moving behavior
3. Set speed of such segment
4. Set time of such segment
5. Program next segment
6. Click "Run" to activate the Auto Pilot 2nd Gen



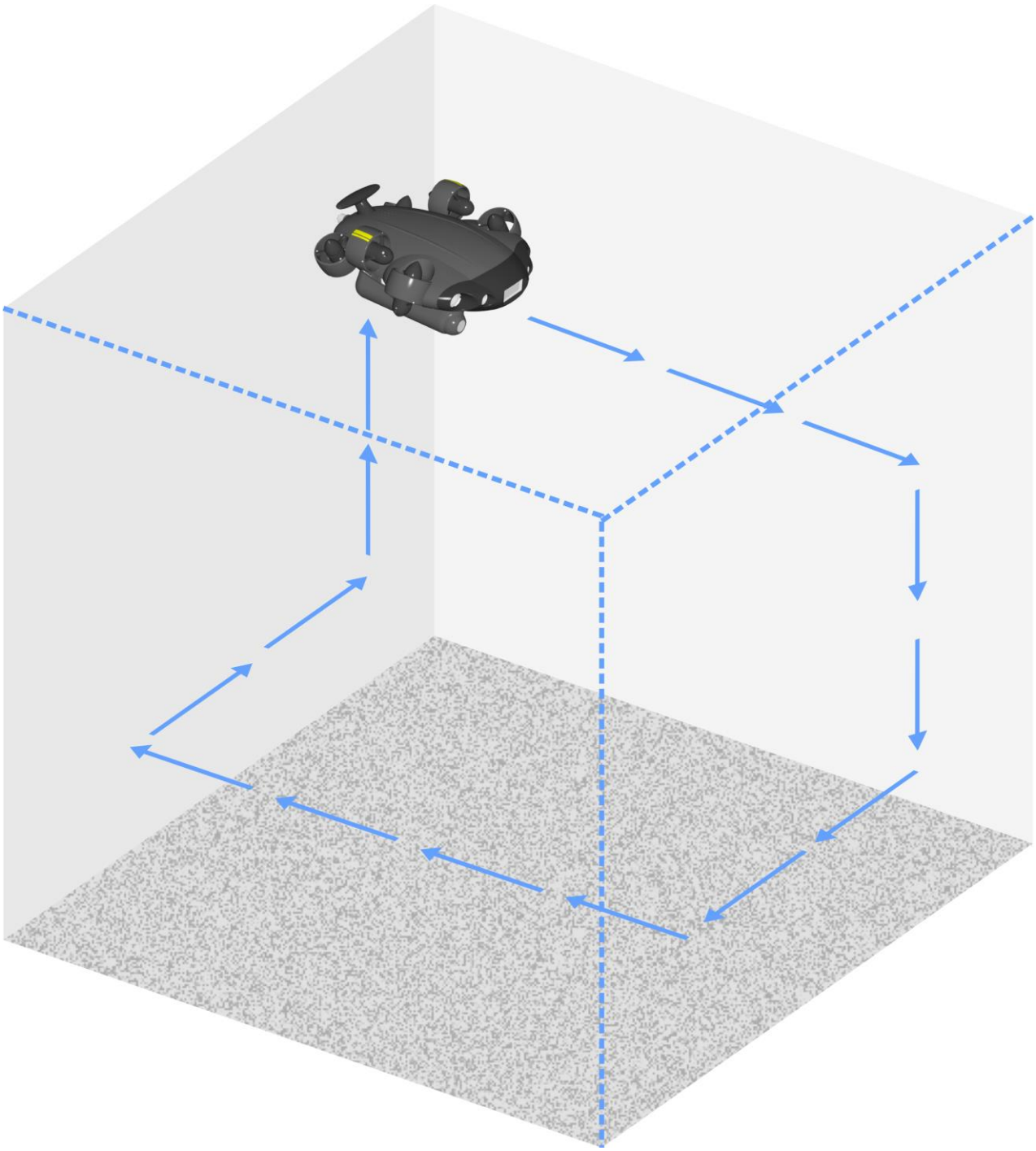



# FIFISH App, Features, Auto Pilot

**Auto Pilot 2nd Gen**

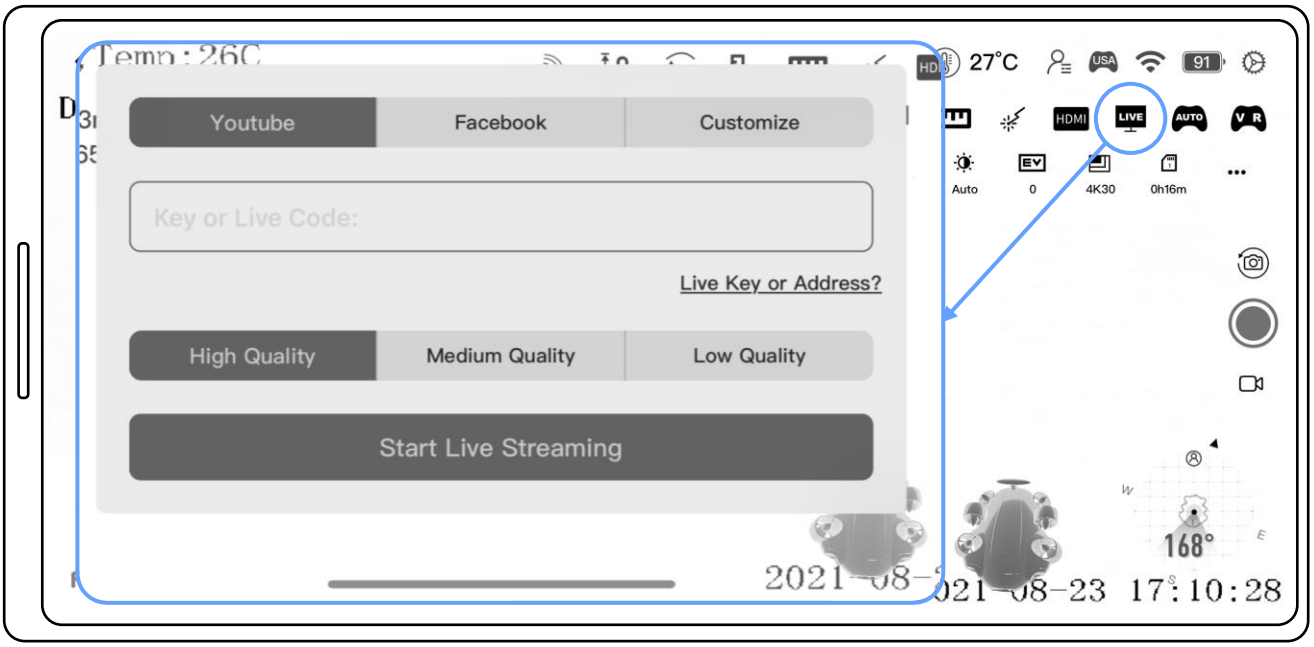
The Auto Pilot 2nd Gen is able programable auto moving commands.



# FIFISH App, Features, LIVE Streaming

### LIVE Streaming

Board casting directly on **YouTube, Facebook** or other social media network.[1]




1. Generate a **Stream Key** and **Stream URL** on YouTube or Facebook
2. Click the **LIVE** icon

3. Past the **Stream URL** and **Stream Key** in column
4. Select the LIVE quality (High, Medium, and Low) [2, 3]
5. Click "**Start Live Streaming**"

**NOTE:**

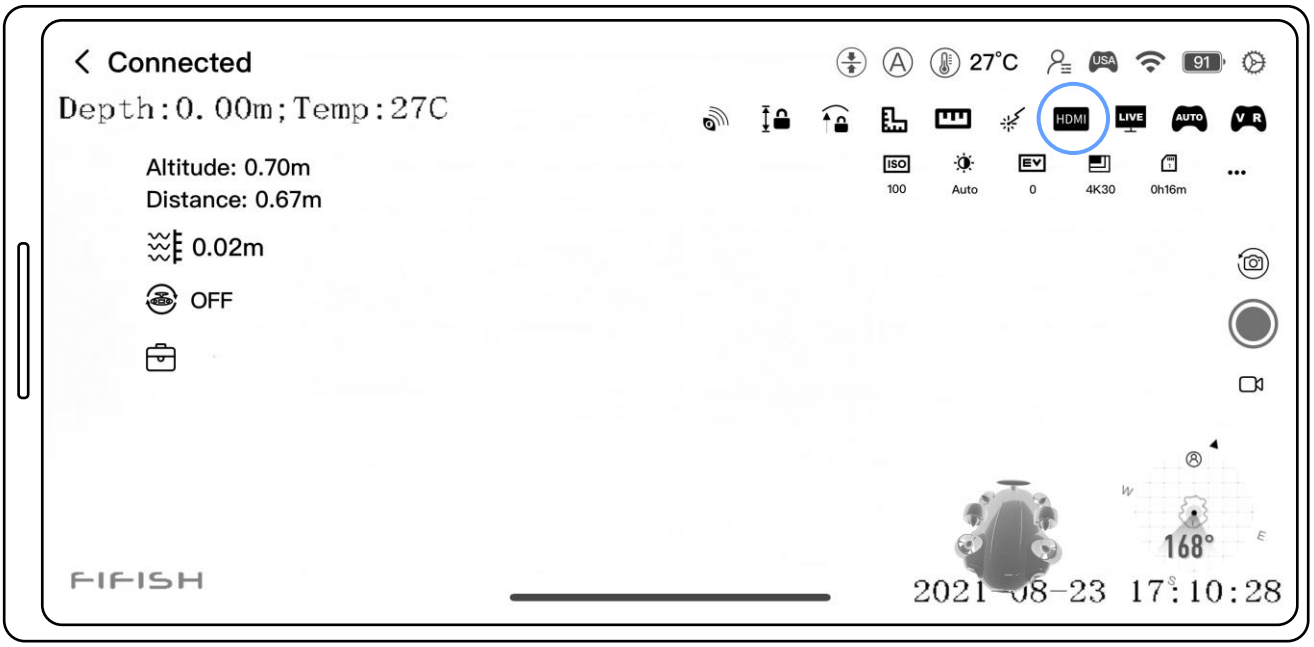
1. This feature will request to use the **iOS devices**. For example, **iPhone** or **iPad** SIM card version.
2. LIVE stream feature will consume your **Cellular Data**, make sure you have enough Cellular Data in your data plan.
3. LIVE stream quality is depending on the local **4G or 5G network speed**.

# FIFISH App, Features, HDMI Box

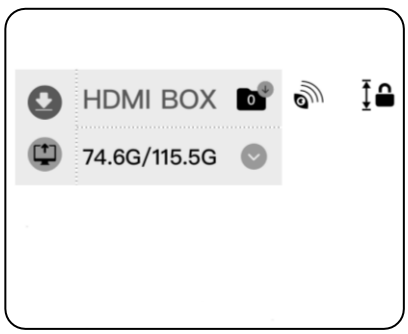
### HDMI Box 2.0, Download to Flash Drive

- HDMI Box 2.0 also capable to download the original resolution video from ROV while recording.[1]
- HDMI Box 2.0 will enable to display on a HDTV or transmitter for TV shows.

1. Connect HDMI Box, and Insert a flash drive [1, 2]
2. Click the **HDMI** icon HDMI




3. The default is Download Mode, the new video will automatically download to flash/portable drive



**NOTE:**

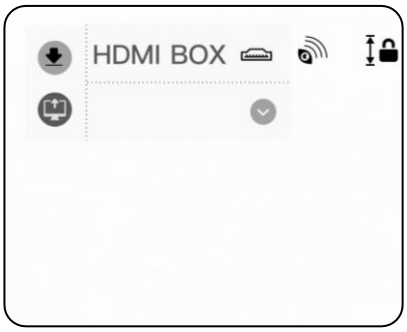
1. Download and Display mode **CANNOT** work at same time, more information check the HMDI Box instructions
2. Format in **FAT32** or **exFAT**, read and write speed **100 MB/s** or higher, **USB 3.0**
3. Flash drive storage **128 / 256 / 512 GB**, portable drive **1 / 2 TB**

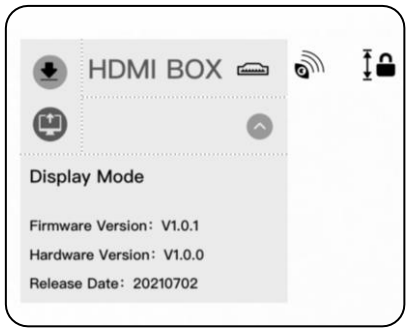
# FIFISH App, Features, HDMI Box

### HDMI Box 2.0, HDMI Output

- HDMI Box 2.0 will enable to stream to a HDTV or transmitter for TV shows. [1]

1. Connect to the HDMI Display or stream transmitter broadcasting devices
2. Click the icon to active **Display Mode**




**NOTE:**

1. Download and Display mode **CANNOT** work at same time, more information check the HMDI Box instructions
2. The default resolution is **1080P 60fps** when HDMI Box is on. (PLEASE DO NOT CHANGE THE RESOLUTION ON FIFISH APP)
3. The HDMI Output latency is about 500 ms

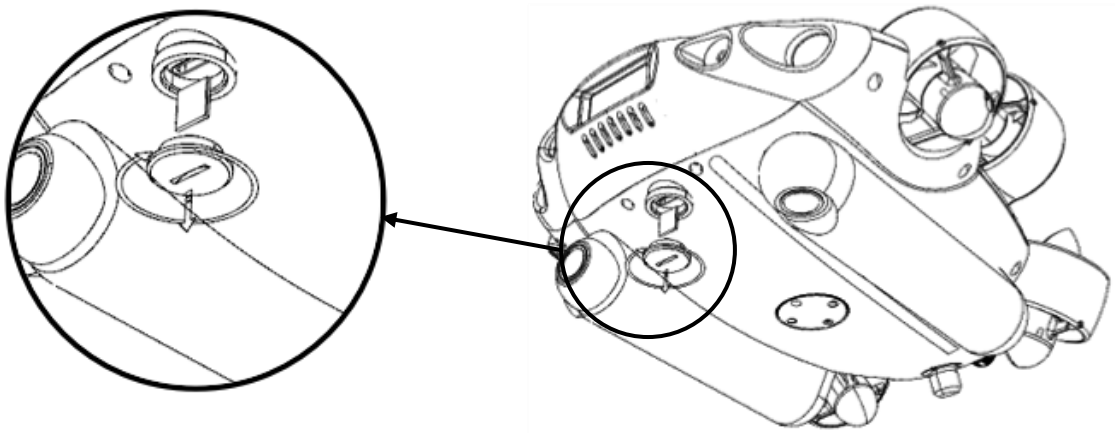
# After-Dive, Packing

**STOP RECORDING** the video before closing the FIFISH App

Clean and wipe out water residue after dive and put gears back into package.[1]

**Video/Photo Download via microSD Hot Shoes** [2]

Open/close the waterproof cover with **special key**. Close the cover with finger tight.



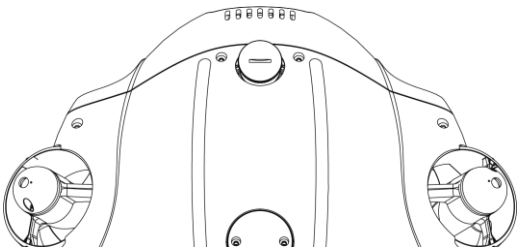
**NOTE**

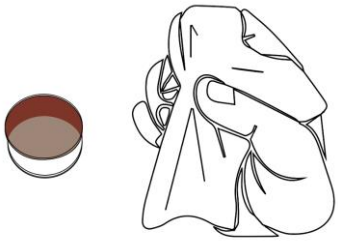
1. Each part has its own slot, try a different direct if you facing any difficulties when putting parts back to original position. Do NOT squeeze or tear when packing, pay extra attention on bending or pressing on tether.
2. Video/photo download can be achieved via microSD slot on RC. Check our website for video tuitions at https://www.qysea.com/support/ or FIFISH App/Help/College.

# After-Dive

**microSD Hot Shoes Cap Maintenance**

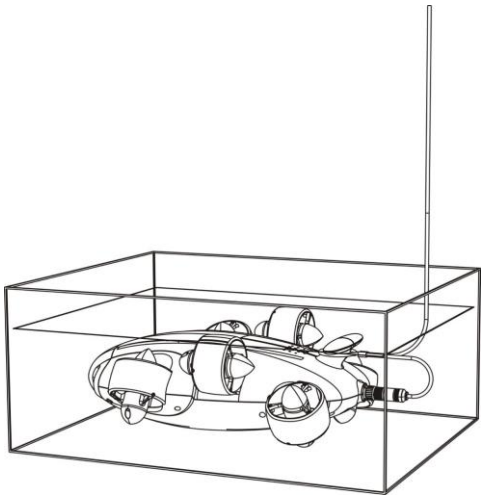
1. Keep the cap and microSD Hot Shoes clean and dry.
2. Apply a thin layer of grease to the interior slot (Red area).





**Motors Maintenance (After Every Dive)**

1. Connect the RC to V6 Expert and open the FIFISH App (see Hardware Connection section, in Quick Start Guide).
2. Make sure every motor is immersed inside fresh water, see the picture (vertical soaking in bucket will have same results).
3. Open FIFISH App, homepage, Click "Help" on the bottom right corner. Click "Maintain/Thrusters", then press "Start". All motors will rotate slowly.
4. In about 10 mins this cleaning program will stop.
5. Air dry V6 Expert in the cool place and avoid direct sunlight.



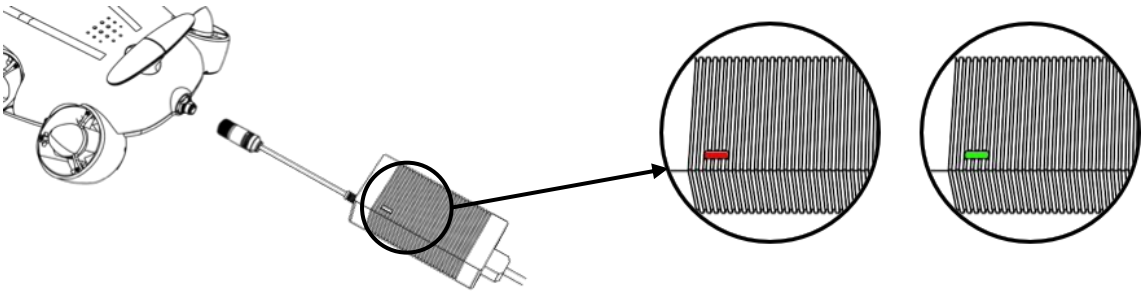
**Battery Maintenance**

1. Keep 50% to 60% battery level before long term storage.
2. Charge to full once every 90 days.

# After-Dive

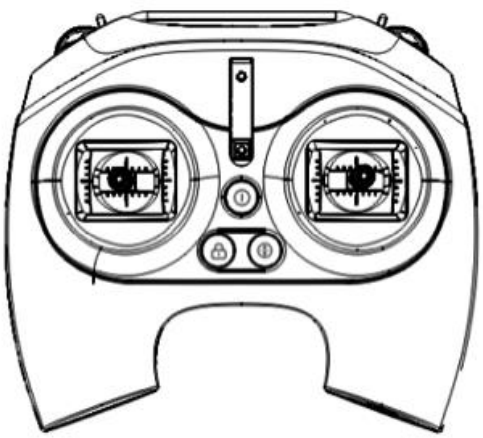
### ROV Charging

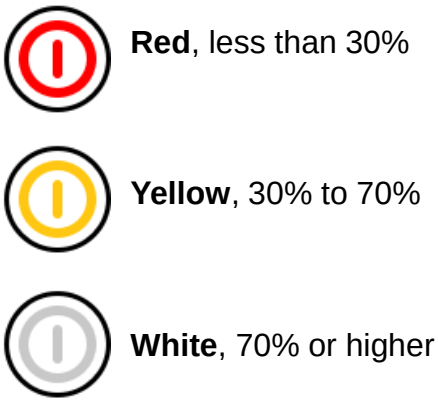
**RED** LED indicator illuminates while charging and **GREEN** LED indicator illuminates while fully charged.

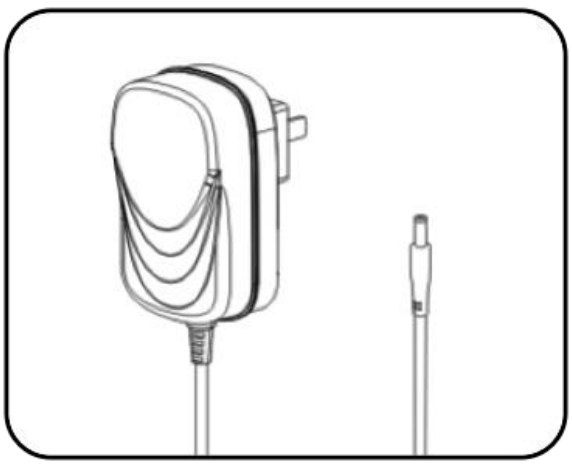


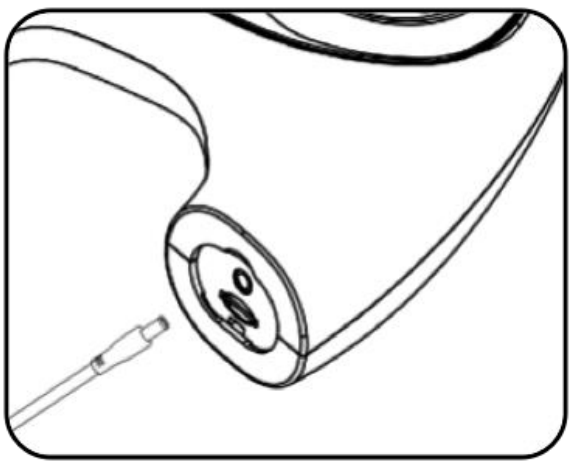
### RC Charging

Flashing ON/OFF button, RC is charging
White steady ON/OFF button, RC is fully charged.







# Specifications

## ROV

| | | |
|---|---|---|
| Dimension | 383 mm × 331 mm × 143 mm | 15 in × 13 in × 5 $^{5}/_{8}$ in |
| Weight | 4.6 kg | 10 $^{1}/_{8}$ lbs |
| Depth Rating | 100 meters | 328 feet |
| Speed | 3.0 Knots (1.5 m/s), max speed in still water | |
| Thrusters | Q-Motor Tech × 6 | 4 × Vector + 2 × Horizontal |
| Maneuverability | 6 DoF (Degree of Freedom) | |
| Moving | Sway | Left / Right |
| | Surge | Forward / Backward |
| | Heave | Up / Down |
| Rotation | 360° in Pitch, Yaw and Roll * | |
| Posture Lock™ | ± 1.0° accuracy | Either in static or moving |
| Depth Lock™ | ± 0.01 m accuracy | Keep ROV suspending |
| Operating Temperature | -10°C to - 60°C | 14°F to 140°F |
| Battery | 1.5 hours run time when against 1 m/s current<br>6.0 hours run time in still water | |
| | 14,400 mAh / 155.52 Wh | Rated Capacity |
| | 1 Hour Quick Charge (90%) | |
| | Panasonic 21700 Li-ion | |

## microSD Card requirement for Hot Shoes

| | | |
|---|---|---|
| Read / Write Speed | 80 MB/s or up (Write) | |
| Capability | 64/128/265/512 GB | |
| Format | exFAT | |
| Recommendations | SanDisk (Ultra/Extreme/Extreme Pro) or Samsung, Kingston, Toshiba's microSD card with similar speed | |

## Q-Interface

| | |
|---|---|
| Port Number | 1 port |
| Material | 316 Stainless Steel |
| Output Voltage and Current | 9.0 ~ 12.0 V, 2.5 A max |
| Network Bandwidth | 100 Mbps |

# Specifications

## Camera

| | | |
|---|---|---|
| Image Sensor | 1/2.3” | SONY CMOS |
| Pixels | 12 Mega Pixels | Effective Pixels |
| ISO Range | 100-6,400 | Auto / Manual |
| Lens | 166 | Filed of View (in air) |
| | f/2.5 | Aperture |
| | 0.4 m | Minimum Focusing Distance |
| Shutter Speed | 5 to 1/5000 second | Auto / Manual (Electronic) |
| Burst Shooting | 3 / 5 / 10 / 15 | Frames |
| WB (White Balance) | 2,500 to 8,000 K | Auto / Manual |
| EV (Exposure Compensation) | - 3.0 ~ + 3.0 EV | |
| Video Resolution | 4K UHD | 25/30 fps |
| | 1080P FHD | 25/30/50/60/100/120 fps |
| | 720P HD | 25/30/50/60/100/120/200/240 fps |
| Video Format | MPEG4-AVC/H.264, HEVC/H.265 | |
| Stabilization | EIS (Electronic Image Stabilization) | |
| Photo Resolution | 4,000 × 3,000 | |
| Photo Format | JPEG, RAW in DNG | |
| Storage microSD | 64/128/256/512 GB | Standard SanDisk Ultra 128GB |

## LED Beams

| | | |
|---|---|---|
| Brightness | 6,000 lumens | |
| CCT (Correlated Color Temp.) | 5,500 K | |
| Beam Angle | 120° | |
| Dimming | OFF, 1, and 2 | |

# Specifications

## Tether and Spool

| | | |
|---|---|---|
| Tether Length | 100 meters (Standard Package) | 328 feet |
| Tether Diameter | 4.0 mm | $^{3}/_{16}$ inch |
| Breaking Force | 100 kgf | 220 lbsf |
| Spool Dimension | 238 mm × 213 mm × 205 mm | 9 $^{3}/_{8}$ inch × 8 $^{3}/_{8}$ inch × 8 $^{1}/_{16}$ inch |
| Spool Weight | 2.08 kg | 4 lbs 9 ounces |

## Remote Controller (RC)

| | |
|---|---|
| Wireless | 5 GHz Wi-Fi 11 a,n, ac |
| Battery Life | Up to 4 hours |
| microSD Card Slot | microSD card format in FAT32 or exFAT (≦128GB), class 10 or higher write and read speed. |
| miniUSB Port Bandwidth | 100 Mbps |

## Charger

| | | |
|---|---|---|
| ROV | 100-240 V, 50/60 Hz, 3.0 A | Max Input |
| | 12.6 V ⎓ 10.0 A | Output |
| RC | 100-240 V, 50/60 Hz, 0.5A | MAX Input |
| | 5.0 V ⎓ 3.0 A | Output |

# Disclaimer

We provide customers with after-sale services, excluding the following circumstances,

- Crashes damage caused by non-manufacturing factors, including but not limited to, pilot errors.
- Damage caused by unauthorized modification, disassembly, or shell opening not in accordance with official instructions or manuals.
- Damage caused by improper installation, incorrect use, or operation not in accordance with official instructions or manuals.
- Damage caused by a non-authorized service provider.
- Damage caused by unauthorized modification of circuits and mismatch or misuse of the battery and charger.
- Damage caused by dives which do not follow instruction and manual recommendations.
- Damage caused by operation in bad water conditions (i.e. strong currents, huge waves, etc.)
- Damage caused by operating the product in an environment with electromagnetic interference (i.e. in mining areas or close to radio transmission towers, caves, muddy condition, radiations, tunnels, etc.).
- Damage caused by operating the product in an environment suffering from interference from other wireless devices (i.e. transmitter, video-downlink, Wi-Fi signals, etc.).
- Damage caused by a forced dive when components have aged or been damaged.
- Damage caused by reliability or compatibility issues when using unauthorized third-party parts.
- Damage caused by operating the unit with a low-charged or defective battery.
- Uninterrupted or error-free operation of a product.
- Loss of, or damage to, your data by a product.
- Any software programs, whether provided with the product or installed subsequently.
- Failure of, or damage caused by, any third-party products, including those that QYSEA may provide or integrate into the QYSEA product at your request.
- Damage resulting from any non-QYSEA technical or other support, such as assistance with "how-to" questions or inaccurate product set-up, installation, and firmware upgrade.
- Damage caused by operating the ROV in the sensitive zone (military, natural resource protection zoning, marine conservation and ocean conservation, etc.)
- Damage caused by unpredictable factors (current, cave collapse, swallow by animal, etc.)
- Products or parts with an altered identification label or from which the identification label has been removed.
- The presence of water droplets or water stains on the ROV may be due to the running tests in water performed at our factory. This will not affect the features and function of FIFISH underwater robot.

For more information, please check our website for tuition videos, or read FAQ in FIFISH APP/help/FAQ.

For latest version of use guide/manuals and other instructions, check on our website.

https://www.qysea.com/support/user-manual/